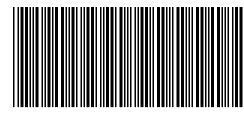


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Clinical Notes .

15-Apr-26

Essential Minerals						
Test	Result	H/L		Reference	Units	
Calcium	212.00			(<450.00)	mg/gCR	
Chromium	0.25			(<4.60)	ug/gCR	
Cobalt	0.00			(<1.60)	ug/gCR	
Copper	79.0	H		(<55.0)	ug/gCR	
Germanium	0.00			(<1.50)	ug/gCR	
Iron	77			(<200)	ug/gCR	
Lithium	13.60			(<55.00)	ug/gCR	
Magnesium	78.40			(<290.00)	mg/gCR	
Manganese	0.64			(<1.50)	ug/gCR	
Molybdenum	28.50			(<65.00)	ug/gCR	
Selenium	8.90	L		(10.00-63.00)	ug/gCR	
Strontium	68.20			(<310.00)	ug/gCR	
Vanadium	2.09			(<8.00)	ug/gCR	
Zinc	432.00			(<900.00)	ug/gCR	
Toxic Metals						
Test	Result	H/L		Reference	Units	
Aluminium	45.30	H		(<40.00)	ug/gCR	
Antimony	0.27			(<1.00)	ug/gCR	
Arsenic	59.00	H		(<35.00)	ug/gCR	
Barium	0.98			(<5.70)	ug/gCR	
Beryllium	<DL			(<0.60)	ug/gCR	
Bismuth	<DL			(<1.00)	ug/gCR	
Cadmium	0.88	H		(<0.60)	ug/gCR	
Lead	5.26			(<8.00)	ug/gCR	
Mercury	6.6	H		(<3.0)	ug/gCR	
Nickel	1.22			(<2.00)	ug/gCR	
Platinum	<DL			(<1.00)	ug/gCR	
Silver	0.05			(<0.10)	ug/gCR	
Thallium	<DL			(<1.50)	ug/gCR	
Tin	0.45			(<0.50)	ug/gCR	



26115-0006

Dr Test Doctor (Test Doctor) Test Clinic. 123 Test Street, Test Suburb Victoria 3125

Lab ID
Patient ID P000060
Ext ID 26115-0006

Test Patient

Sex: Female • 56yrs • 01-Jan-70
123 Home Street, Test Suburb VIC 3125

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[illegible]

Essential Minerals Comment

COPPER ELEVATED (URINE):

Elevated urinary copper suggests increased copper excretion, which may occur with higher intake, inflammatory activity, hormonal influences, or altered hepatic copper handling.

Clinically, elevated urinary copper may be associated with fatigue, mood changes, or increased oxidative stress, although findings are non-specific.

From a functional medicine perspective, this result should be interpreted in the context of copper–zinc balance, inflammatory status, oestrogen exposure, and liver function rather than as an isolated indicator of copper excess. Correlation with serum copper and plasma zinc may assist in contextual interpretation where clinically indicated.

SELENIUM LOW (URINE)

Low urinary selenium suggests reduced selenium intake and/or lower selenium availability for physiological processes. Selenium is an essential trace element required for the activity of multiple selenoproteins, including glutathione peroxidases and iodothyronine deiodinases, which are involved in antioxidant defence and thyroid hormone metabolism.

Clinically, low selenium availability may be associated with reduced antioxidant capacity, impaired immune function, thyroid dysregulation, fatigue, or increased susceptibility to oxidative stress, although symptoms are often subtle.

From a functional medicine perspective, low urinary selenium should be interpreted in the context of dietary intake, geographic soil selenium content, thyroid function, and overall oxidative stress burden rather than as an isolated deficiency marker. Correlation with clinical context and, where indicated, serum selenium or functional markers may be appropriate.

Treatment considerations:

1. Increase foods rich in Selenium e.g. organ meats, eggs, garlic, shellfish, brazil nuts, whole grains, brazil nuts
2. Selenium
3. Reduce exposure to heavy metals. Lead and Arsenic are antagonistic to Selenium.

VANADIUM (V) LOW: The biological function of vanadium has not fully been substantiated, but there is evidence that it is essential for the growth of some animals. Vanadium may influence lipid metabolism, insulin function, and reduce caries formation in animals. Vanadium is poorly absorbed. **SOURCE:** All plant foods, especially soymeal and vegetable oils.

Toxic Metals Comment

ALUMINUM ELEVATED (URINE):

Elevated urinary aluminum suggests increased aluminum exposure and renal excretion. Sources may include dietary intake, medications (e.g. antacids), occupational exposure, or environmental contact.

Clinically, elevated aluminum exposure may be associated with fatigue or neurological symptoms at higher or sustained levels, particularly in individuals with impaired renal function.

From a functional medicine perspective, this result should be interpreted in the context of exposure sources, renal handling, and overall metal burden, with emphasis on exposure identification and reduction.

Treatment: Avoid exposure, support detox with silica-rich water, malic acid, NAC, and glutathione. Consider chelation with EDTA in high exposures

ARSENIC ELEVATED (URINE):

Arsenic exposure may be organic (dietary, e.g. seafood) or inorganic (toxic). Urinary elevation reflects recent exposure and detoxification efficiency.



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Clinically, elevated urinary levels may be associated with gastrointestinal upset, fatigue, skin changes, or neuropathic symptoms. Interpretation should consider recent exposure, occupational or environmental sources, renal clearance, and nutritional status.

From a functional medicine perspective, management focuses on differentiating organic vs inorganic sources, improving methylation capacity, ensuring folate and selenium sufficiency, and reducing exposure.

Treatment: Distinguish between organic and inorganic forms; support methylation (folate, B12, SAMe), and use chelation agents like DMSA or NAC if applicable.

MERCURY ELEVATED (URINE):

Elevated urinary mercury suggests increased mercury exposure and renal excretion. Urinary mercury primarily reflects inorganic or elemental mercury exposure rather than methylmercury from seafood.

Clinically, elevated urinary mercury may be associated with neurocognitive symptoms, tremor, fatigue, or renal effects, depending on exposure magnitude and chronicity.

From a functional medicine perspective, this finding should be interpreted in the context of exposure sources (occupational, dental, environmental), renal function, and antioxidant capacity. Correlation with exposure history and, where clinically indicated, mercury speciation or blood testing may assist contextual interpretation.

Treatment: Eliminate exposure (e.g., amalgam removal by trained providers), use selenium, NAC, ALA, and chelation agents as appropriate.

CADMIUM ELEVATED (URINE):

Elevated urinary cadmium suggests increased cadmium exposure and/or mobilisation with renal excretion. Urinary cadmium is considered a marker of chronic body burden rather than acute exposure.

Clinically, elevated cadmium exposure may be associated with renal tubular stress and bone mineral effects at higher or sustained levels. Smoking remains a common non-occupational source.

From a functional medicine perspective, this finding should prompt assessment of exposure sources (smoking, diet, occupation) and consideration of renal health and antioxidant status, with emphasis on exposure reduction rather than intervention unless clinically indicated.

Treatment: Remove exposure, support zinc and selenium (compete with cadmium), and consider chelation (e.g., EDTA or DMSA).

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Chelator-specific Reference Ranges

CHELATOR SPECIFIC ORIENTATION RANGES:

The following chelator-specific ranges have been developed based on the fact that each chelator has a specific binding capacity. The ranges were developed based on statistical calculations of a population challenged with one ampoule DMPS or 300mg DMPS.

A urine excretion value/result higher than the Orientation Ranges below, indicates a moderate to high toxic burden.

A test result higher than the normal (pre-chelation) reference range and lower than the Orientation Range indicates a low to moderate toxic burden.

ELEMENT	DMSA (ug/gCR)	EDTA (ug/gCR)	DMPS (ug/gCR)
Toxic Metals			
Aluminium (Al)	< 50	< 100	< 50
Antimony (Sb)	< 10	< 10	< 15
Arsenic (As)	< 100	< 100	< 100
Barium (Ba)	< 10	< 20	< 10
Beryllium (Be)	< 2.0	< 2.0	< 2.0
Bismuth (Bis)	< 10	< 10	< 10
Cadmium (Cd)	< 5.0	< 5.0	< 5.0
Cesium (Cs)	< 30	< 30	< 30
Cobalt (Co)	< 15	< 15	< 15
Gadolinium (Gd)	< 5.0	< 5.0	< 5.0
Lead (Pb)	< 30	< 80	<20
Mercury (Hg)	< 20	< 10	< 40
Nickel (Ni)	< 20	< 30	< 20
Palladium (Pd)	< 15	< 15	< 15
Platinum (Pt)	< 5.0	< 5.0	< 5.0
Silver (Ag)	< 5.0	< 5.0	< 5.0
Thallium (Tl)	< 10	< 10	< 10
Tin (Sn)	< 15	< 20	< 15
Titanium (Ti)	< 50	< 50	< 50
Uranium (U)	< 1.0	< 1.0	< 1.0
Essential Elements			
Manganese (Mn)	< 5.0	< 10	< 5.0
Strontium (Sr)	< 310	< 310	< 310
Tungsten (W)	< 10	< 10	< 10
Vanadium (V)	< 8.0	< 10	< 8.0
Zinc (Zn)	< 1500	< 2000	< 1500



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Methodology

Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Automated Chemistry/Immunochemistry